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fibers served for tying purposes in the construction of houses. Today they are used in making baskets.

Gourds

White gourds, *hue* (*Lagenaria vulgaris*), were among the plants seen by the Spaniards in the fields of Easter Island (90, p. 123). They did not escape the attention of Cook (53, vol. 1, p. 288), though Forster failed to notice them.

The gourds, which fifty years ago grew wild over the island, were once abundant, but they seem to have disappeared entirely. Some of the graves we opened contained fragments of gourds in rather bad condition.

I assume that there was only one variety of gourd on Easter Island. The names that Knoche (123, p. 118) gives as varieties of calabashes are actually names of something quite different. The word *hipu* means container and applies of course to the gourds which were the only containers used by the natives. *Pakahara* means the shell of anything, but especially of a gourd. *Moutini* are pumpkins which have been introduced, probably from Tahiti where they have the same name.

Gourds were of two kinds. The round ones were used as containers for small things and the elongated ones were for water. Large calabashes in which the natives kept clothes, soaked mulberry bark, or boiled potatoes were called *kaha*.

Paper Mulberry

Paper mulberry trees, *mahute* (*Broussonetia papyrifera*), were raised in the enclosures found near the ancient villages, according to informants. These enclosures, some of which may also have been used for banana trees (fig. 2),

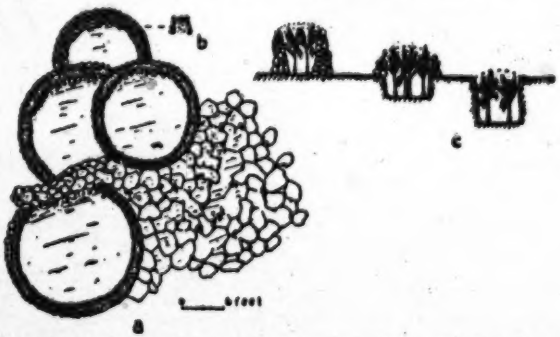

Figure 2.—Cultivation enclosures: *a*, enclosure near Vai-tarai-kai-ua; *b*, cross section of wall construction of enclosure shown in *a*; *c*, three types of enclosure in section, scale 1:250 (from Skottsberg, 208, vol. 1, fig. 2).

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248 are generally not very extensive and their number and size seem to corroborate Cook's statement (53, vol. 1, p. 291) that the natives had difficulty in getting raw material for their clothes. La Pérouse (130, vol. 1, p. 73) was impressed by the scarcity of the *mahute*: "These trees are very rare, having been destroyed by the droughts. Such as have survived are only three feet high, and these they have been obliged to encompass with walls to secure them from the winds: it is remarkable that the height of these trees never exceeded that of the walls by which they are sheltered."

G. Forster (83, vol. 1, p. 568) describes a mulberry tree plantation: "Being arrived at the shrubbery which we had in view, we found it was nothing but a small plantation of paper mulberry, of which here, as well as at Teheitee, they make their cloth. Its stems were from two to four feet high, and planted in rows, among very large rocks, where the rain had washed a little soil together."

The expedition sent by Cook (53, vol. 1, p. 285) to explore the south coast "saw in several places the Otaheitian cloth plant; but it was poor and weak, and not above two and a half feet high at most."

Today the *mahute* is found only in the interior of the crater of Rano-kao, where, at about the time of La Pérouse (130, vol. 1, p. 81), "the marsh was surrounded by finest plantations of bananas and mulberry trees." They still grow well on the northern slope among big stones.

Turmeric

249 Turmeric, *pua* (*Curcuma longa*), grows sparsely in the bottom of the crater of Rano-kao. The Spaniards who went round the island in 1770 saw [302 in the plantations "a root which they chew and daub their body and limbs all over with; it is good for yielding a fine yellow dye" (90, p. 123). The natives esteemed both the dye and the perfume of the plant, for the native name means fragrance. 386]

Arrowroot

244 Arrowroot, *pia* (*Tacca pinnatifida*), was described to me by the islanders. According to them, it resembled *pua*, with the sole exception that the *pia* root was white. The rhizomes of *pua* and *pia* are quite unlike. In ancient times [262] it was eaten after it had been baked either upon or in the oven. Arrowroot yielded a dye which was made from the starch by the same method as that [386] used for the *pua*. Knoche (123, p. 120) and Brown (27, p. 39) both identify the plant as the wild arrowroot.

The word *pia* appears in an old chant collected by Thomson (215, p. 520), in which are described genealogically the origins of plants and other elements of nature. If Thomson's text were entirely reliable, it would prove beyond any doubt that arrowroot was known to Easter Islanders before contact with

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TAPA

Paper mulberry (*Broussonetia papyrifera*), called *mahute*, was cultivated near the houses in stone enclosures (*manavai*, fig. 2). Today some paper mulberry trees grow wild on the inner slopes of Rano-raraku, but the steep sides of the crater can be reached only with great difficulty.

The best stalks for tapa making are the tender saplings which have neither side shoots nor buds. In ancient days they were collected by the men, who also peeled them. The bark must be peeled the same day or the day after the saplings are gathered.

A longitudinal slit is made with a knife (formerly an obsidian splinter) along the stalk, and the bark is pulled off with the hands (*ka ihi te kiri*) to obtain the greatest possible length. The outer bark is separated from the inner bast (*ka huhure*) with a knife. The strips (*kohiti*) are rolled into coils to make them flat and smooth with the inner surface outside. The coils are soaked in fresh water for three or four days to loosen the fibers before final beating. Formerly they were first put in salt water, then in fresh water for several days. Women carried the strips of bast to the seashore and, squatting on the shore, beat the material for hours while their assistants carried water to sprinkle the bast. When they performed this work they were naked in order not to damage their clothing.

Tapa beaters (*ika*) were carved from *toro-miro* wood and were "about a foot long and 3 inches on each face. Some of the faces were smooth and others carved into grooves or ribs, to suit the different stages on the process of manufacture" (215, p. 467). Only two Easter Island tapa beaters have been preserved (fig. 22, *a*, *b*). Modern women use the first suitable branch to be found.

Zumbohm (230, vol. 5, p. 664) says that polished stones were used for beating tapa, and this statement is borne out by present-day natives. In Bishop Museum (B3496) there is a stone labeled "pounder" which may possibly have served as a tapa beater. So far as we know, the Easter Islanders never pounded taro or any other kind of food as do many Polynesians. No instruments which could be identified as pounders have been found on the island. The so-called pounder in Bishop Museum has a natural conical shape that fits the hand. The base of the cone shows traces of use as if the specimen had been employed to pound or mash some soft substance.

The anvil was usually a smooth boulder of more or less square shape. Near old settlements the Franco-Belgian Expedition found big boulders with one surface showing traces of use. The natives pointed them out as ancient tapa anvils. In more recent times the Easter Island women beat their tapa on big logs.

The woman knelt in front of the anvil and gently beat the *mahute* (*tutu te mahute*) strips, sprinkling them repeatedly with water. Nowadays the beating process is short, and the tapa is rather coarse. Thomson (215, p. 467) mentions two kinds of tapa—one fine, the other coarse and heavy. After beating, the tapa sheets were carefully stretched with the hand to prevent wrinkling or bulging. They were extended (*hakatere*) between banana leaves and put in the air to dry. The strips were sewn together with needles and fine strings of *hau*. The needles (*ivi tia nua*) were generally of bird bones but perhaps some were of human bones. A great many are found in caves. Their length ranges from 3 to 21 cm., the most common length being 8 to 12 cm. Some needles are strongly curved; these are generally wide (0.5 cm.), and the side corresponding to the interior of the bone has a longitudinal depression. Single or double eyes are drilled near the rounded end of the needle.

9: Forster T-5 (1774) 1777
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1774. March. pillar which appeared above ground. We did not obſerve that the natives paid any worſhip to theſe pillars, yet they ſeemed to hold them in ſome kind of veneration, as they ſometimes expreſſed a diſlike when we walked over the paved area or pedeſtals, or examined the ſtones of which it conſiſted.

A few of the natives accompanied us farther on into the country, where we had ſeen ſome buſhes at a diſtance, which we hoped would afford us ſomething new. Our road was intolerably rugged, over heaps of volcanic ſtones, which rolled away under our feet, and againſt which we continually hurt ourſelves. The natives, who were accuſtomed to this deſolate ground, ſkipped nimbly from ſtone to ſtone without the leaſt difficulty. In our way we ſaw ſeveral black rats running about, which it ſeems are common to every iſland in the South Sea. Being arrived at the ſhrubbery which we had in view, we found it was nothing but a ſmall plantation of the paper mulberry, of which here, as well as at Taheitee, they make their cloth. Its ſtems were from two to four feet high, and planted in rows, among very large rocks, where the rains had waſhed a little ſoil together. In the neighbourhood of theſe we ſaw ſome buſhes of the *hibiſcus populneus*, Linn. which is common alſo in the Society Iſles, where it is one of the numerous plants made uſe of to dye yellow; and likewiſe a *mimoſa*, which is the only ſhrub that affords the natives ſticks for their